United States Department
of Agriculture

Forest Service

Bitterroot National Forest

May 2003

CANYON LAKE DAM AND WYANT LAKE DAM PROJECT

SUMMARY
Final Environmental Impact Statement

Canyon Lake Dam

SUMMARY

CANYON WYANT FEIS

INTRODUCTION

The Forest Service proposes to authorize Canyon Creek Irrigation District (CCID) access to their easements at Canyon Lake Dam and Wyant Lake Dam, with certain terms and conditions, so that CCID may make these facilities safe and consistent with their responsibilities under federal dam safety laws and regulations, and consistent with their rights and responsibilities under terms of their easements. The Final Environmental Impact Statement (FEIS) considers the effects of this and alternative authorizations.

Canyon and Wyant Lake Dams are owned and operated by Canyon Creek Irrigation District (CCID). The irrigation district is authorized to maintain and operate these dams under valid pre-Forest easements recognized under the Act of 1866 and the Act of 1891 granted by the Secretary of the General Land Office/ Department of Interior (Project File (PF) 1.1). Both easements are entirely within the National Forest boundary as well as within the Selway Bitterroot Wilderness.

Public access to Canyon Lake is currently by Trail #525, which ascends over 2400 feet in 5 miles to the cirque where Canyon Lake is located. This steep trail, which crosses over boulder talus below the lake, has been administered for non-motorized access since the establishment of the Selway-Bitterroot Wilderness in 1964. This trail is not recommended for stock use. Reconstruction would be needed to make it safe for stock. There is no maintained trail to Wyant Lake.

Based on the environmental analysis in this Final Environmental Impact Statement and after considering public and agencie's comments, the Forest Service will decide which modes and routes of access to authorize CCID. The agency will also decide which, if any, terms and conditions on CCID's access and proposed work are necessary to protect the National Forest.

PURPOSE AND NEED FOR ACTION

The purpose of this proposal is to authorize CCID adequate access to their facilities and to prescribe terms and conditions related to this access and their subsequent work on the facilities as necessary to protect the National Forest.

The purpose and need for the project stems from the Canyon Creek Irrigation District's existing rights and obligations to maintain Canyon and Wyant Dams consistent with federal dam safety standards and other pertinent laws and regulations which also govern CCID's use of their easements and the protection of National Forest System lands.

CCID has requested access to their Canyon Lake and Wyant Lake facilities so they may perform work necessary to meet the requirements of federal dam safety standards. As the dam owner, CCID is responsible for repair and maintenance of Canyon and Wyant Lake dams. Both Canyon

and Wyant Dams have structural and design deficiencies that the CCID must correct to comply with the requirements of dam safety laws and regulations. The nature of known deficiencies, the downstream risks, and uncertainties associated with the internal structure and integrity of these older dams increase the urgency that known deficiencies be corrected as soon as possible.

It is important that any corrective measures be completed in one operating season if possible. An increased risk of failure, as well as damage to natural resources would result if repairs were left to over winter in an "open" and unfinished state.

SUMMARY OF THE PROPOSED ACTION

The Bitterroot National Forest proposes to authorize the Canyon Creek Irrigation District access to their facilities with the terms and conditions described as Alternative 2 below and in further detail in Chapter 2 of the FEIS. The Forest Service would authorize sufficient helicopter trips to allow for the work to be done at Canyon and Wyant Lake Dams.

The Forest Service also proposes to require certain conditions be met during the irrigation district's repair, maintenance, and breach activities within the Wilderness and National Forest boundaries. These conditions address resource concerns such as sedimentation, safety and wilderness. They are also listed below and in Chapter 2 of the FEIS.

ISSUES USED TO DEVELOP ALTERNATIVES

Access

The Canyon Creek Irrigation District (CCID) has requested helicopter access to their easements at the Canyon Lake Dam and Wyant Lake Dam on the Bitterroot National Forest. The CCID requires the access so they may rehabilitate the Canyon Lake Dam and so they may breach the Wyant Lake Dam.

Some groups questioned whether helicopter access is consistent with management direction for wilderness. Other people supported helicopter use.

Wilderness Character

CCID has the right pursuant to its easement, to utilize National Forest system lands for its dams and reservoirs, and the responsibility to maintain and operate the dams in accordance with the federal dam safety laws and regulations. The Forest Service has the responsibility and authority to regulate the use of that easement so as to protect the national forest.

Some groups wrote that "where a choice must be made between wilderness values and any other activity, preserving the wilderness resource is the overriding value."

DEVELOPMENT OF ALTERNATIVES

The interdisciplinary team reviewed comments received during scoping for the proposed action. Each comment was examined carefully by the IDT in an effort to better define the scope of analysis, the level of analysis that would be sufficient to address the concerns, and to develop a range of alternatives that is reasonable and responsive to the key issues. The alternatives that were developed are also responsive to CCID's request to access their easements at Canyon Lake Dam and Wyant Lake Dam, so that they may make these facilities safe, consistent with their responsibilities under dam safety laws and regulations. Option D is new for the FEIS. It was proposed by CCID on February 13, 2003, after considering information from engineers, irrigation district and other publics.

Alternatives 2 and 3 each allow for CCID's Options A, B, C and D. Alternatives 2 and 3, Options A, B, C were considered in the DEIS and are retained for consistency and disclosure. Reference Appendix A for detailed discussion of these options.

Option A, Repair Critical Deficiencies of Canyon Lake Dam.
Option B, Major Rehabilitation of Canyon Lake Dam.
Option C, Breach of Canyon Lake Dam.
Option D, Partial Breach of Canyon Lake Dam in 2003 (Phase I), Major Rehabilitation of Canyon Lake Dam in 2004 (Phase II).

All options include breaching Wyant Lake Dam**.**

PROJECT ALTERNATIVES

ALTERNATIVE 1 – NO ACTION

Under this alternative CCID would not be authorized access to repair their facilities. Similarly, no additional terms or conditions would be placed on their use of this easement. Routine maintenance would be allowed to continue under the existing easement.

This alternative would result in both Canyon and Wyant Lake Dams remaining in their present deteriorated condition. The dams would continue to be out of compliance with federal dam safety laws and regulations. The deficiencies for both dams are described in detail in Appendix A.

ALTERNATIVE 2 – PROPOSED ACTION

This alternative was developed to address the purpose and need for action. This alternative was developed to authorize adequate access to Canyon Lake Dam and Wyant Lake Dam, in response to CCID's plans to perform work at Canyon and Wyant Lake Dams, while limiting effects to wilderness and other resources.

The Bitterroot National Forest proposes to authorize the Canyon Creek Irrigation District access to their facilities. The Forest Service would authorize sufficient helicopter trips to allow for the

work to be done at Canyon and Wyant Lake Dams (see the description of CCID's planned work in FEIS appendix A).

In addition, in order to protect national forest values, the specific terms, conditions, and mitigation measures specified on pages S-5 to S-7 would be required during access and work periods authorized under this alternative.

Some minor repair could be done on Canyon Creek Trail #525 to accommodate minimal stock transport.

ALTERNATIVE 3 – PROPOSED ACTION WITH MODIFIED ACCESS

This alternative was developed to address the purpose and need for action and also address the issues of access and wilderness character.

Access would be modified as compared to Alternative 2. Helicopter transport would be authorized only for heavy equipment or materials too heavy or awkward to transport safely with stock. All other equipment, materials and supplies would be transported with stock. Most workers would hike or ride stock to the work site.

In 2003, trail work would be completed to accommodate stock access to Canyon and Wyant Dams. Canyon trail and trailhead would be reconstructed. A new trail would be constructed from Canyon to Wyant Dam.

In late 2003 or in 2004, the CCID would be authorized to use the fewest number of helicopter flights necessary to transport equipment and materials too heavy for stock. CCID would then be authorized to transport the remaining materials by stock on these trails (see the description of CCID's planned work in appendix A).

In addition, in order to protect National Forest values, the terms, conditions, and mitigation measures specified on pages S-5 to S-7 would be required during access and work periods authorized under this alternative.

MITIGATION MEASURES, TERMS AND CONDITIONS, AND PERMITS

Mitigation Measures, Terms and Conditions, Monitoring requirements and Permits required for Action Alternatives

Mitigation measures are those controls or guidelines that reduce or eliminate adverse effects of management activities. Monitoring is the gathering of information and observation of management activities to provide a basis for confirming that work is accomplished as designed and that mitigation measures are effective.

The original grant application to the State of Montana includes mitigation measures that were developed by the Canyon Creek Irrigation District's engineer. Most of these measures are incorporated into the following discussions.

In addition to Forest Service policy and Forest Plan requirements, the Interdisciplinary Team identified project-specific mitigation measures and other plans and specifications that would be required under each alternative. The Environmental Consequences of Alternatives discussions in Chapter 3 is based on implementation of the listed mitigation measures. Terms and conditions describe mitigation and monitoring items that will be required of CCID.

The terms and conditions and mitigation measures required for the action alternatives 2 and 3 are displayed on the following Tables 2.1 to 2.5. The CCID options referred to in these tables are: Option A, Repair Critical Deficiencies of Canyon Lake Dam; Option B, Major Rehabilitation of Canyon Lake Dam; Option C, Breach of Canyon Lake Dam; Option D, Partial Breach of Canyon Lake Dam in 2003 (Phase I), Major Rehabilitation of Canyon Lake Dam in 2004 (Phase II)**.** All options include breaching Wyant Lake Dam**.**

The following items are CCID's Responsibility:

Table 2.1 Terms and Conditions (CCID)

Measure	Alt.2 CCID Options	Alt.3 CCID Options
Dam Safety		
1. A flood routing study will be completed on Canyon Dam to ensure that the partial breach or full breach (Options C & D), which will function as the principal spillway, will be sized to safely pass the required inflow design flood without overtopping the dam. The flood routing study for repairing Canyon Dam (Options A and B) would be required to size the existing Canyon Dam spillway to safely accommodate the required design flood. (The required inflow design flood for Canyon Dam is the Probable Maximum Flood because of the dam's high hazard classification). A second flood routing study will also be required to ensure that Canyon Dam can safely route a Wyant Dam failure without overtopping Canyon Dam (All options).	A, B, C, D	A, B, C, D
2. At the end of each field season, it is important that any corrective measures, including erosion control and armoring of the embankment, be completed to the extent that the dam can withstand the following winter conditions and spring runoff or precipitation events. Project work plans will include some room for contingencies because of the limited field season in which to accomplish the work.	A,B,C,D	A,B,C,D
3. The dam owners are responsible to provide their own radio or telephone communications.	A, B, C, D	A, B, C, D
4. During the construction period of the partial breach with minimal mechanized tools, CCID and their engineering representative will have an emergency plan in place to deal with flooding from a major storm event. Components of the plan will include the availability of onsite sand bags to armor the partially constructed breach, the backup availability of flying in heavy equipment, and establishing safety and emergency procedures to minimize risk to construction crew and downstream residents.	Phase 1 of D	Phase 1 of D

Measure	Alt.2 CCID Options	Alt.3 CCID Options
Wilderness Resource and Recreation		
5. Airlift flights in the valley will be routed to minimize noise near residences. Where feasible and safe to do so, helicopters will avoid flying over mountain goats. When possible helicopters will avoid flying directly over trails.	A, B, C, D	A, B, C, D
6. Quiet low velocity blasting such as a boulder buster will be used as much as reasonable for rock excavation and quarrying.	A, B, C, D	A, B, C, D
7. All solid wastes/refuse will be properly stored.	A, B, C, D	A, B, C, D
8. All solid wastes will be removed from National Forest lands, except for burnable kitchen wastes.	A, B, C, D	A, B, C, D
9. In Alternative 2 &3, Options A, B & C all human waste will be removed from National Forest lands. In Alternative 2 & 3, Option D, if mechanized transport is not needed for heavy equipment, latrines will be located 200' from water and filled in between and after Phases 1 & 2. If mechanized transport is needed for heavy equipment, all human waste will be removed frorm National Forest lands.		
10. Latrines will be used for human wastes and kitchen wastewater.	A, B, C, D	A, B, C, D
11. All fuel shall be stored in an approved spill containment structure that shall be of sufficient capacity to contain all the fuel stored in the structure. The basic containment structure shall include an HDPE-lined basin and berm to contain spills or leaks. Fuel will be stored more than 100 feet from the surface water. All hazardous material will be removed from the site by the end of the operating season. A hazardous spill kit will be on site.	A, B, C, D	A, B, C, D
12. Soil borrow areas, rock quarry for riprap, staging and stockpiling areas, fuel storage and containment area, and camping site for Canyon Lake Dam are shown on the "Canyon Lake Dam Site Plan" in Appendix D.	A, B, C, D	A, B, C, D
13. Public notice of closures will be done by the CCID.	A, B, C, D	A, B, C, D
Water and Fisheries (if not specified, these apply to both dams)		
14 If possible, all work will be accomplished outside of the standing water. This is to be accomplished by the use of cofferdams around the work area on Canyon and Wyant dams. Pumps will be used to control seepage through cofferdams. Seepage will be pumped into the reservoir so sediments settle.	A, B, C, D	A, B, C, D
15. Seepage and grout wash water will be pumped onto the reservoir shoreline to reduce suspended sediments.	A, B, C, D	A, B, C, D
16. Water that flows into the reservoir during construction will be pumped over the dam and onto sites that can handle the water without eroding (consistent with mitigation #10 of irrigation district's loan application, May 2000).	A, B, C, D	A, B, C, D
17. Weed free straw bales, silt fence or wattles, to capture sediment from construction operations shall be installed below disturbed areas. Three or more structures in succession may be required in cases where sediment is entering or will enter Canyon Creek.	A, B, C, D	A, B, C, D
18. Disturbed areas, including soil borrow areas, as much as is practical, shall be confined to within the high water mark of the existing lake. Borrowed rock will be from the reservoir or from historical quarries near the high water mark. If suitable, these areas shall be rehabilitated, or re-contoured, at the end of the project. These areas shall be confined to the least amount of surface area. These areas shall have a Forest Service approved reclamation plan and be reclaimed to those specifications by the end of the project.	A, B, C, D	A, B, C, D
19. In-channel sediment traps are required below both dams during construction. At the Wyant breach site sediment traps could be located downstream in a location that is not dominated by boulders, but needs to be above the spawning area upstream of Canyon Lake. Forest fishery or hydrology personnel would help locate and design the traps.	A, B, C, D	A, B, C,D

Measure	Alt.2 CCID Options	Alt.3 CCID Options
20. Breach options at Canyon Lake would include constructing a boulder cascade or a set of small falls and plunge pools (similar toRosgen A2 channel type) to reduce velocity and energy between the breach and the wet meadow area below the dam. A Forest fisheries biologist and hydrologist will be notified when the stream re-construction phase of the project would begin so they have the opportunity to be onsite if they determine it is necessary.	C, D	C, D
Heritage Resource		
21. A cultural site in the Canyon Lake reservoir soil borrow area will be avoided as a staging area, borrow site, or by compacting activities.	A, B, C, D	A, B, C, D
Revegetation and Reclamation		
22. Two historical borrow areas will be further reclaimed. Revegetation will be required on all construction-disturbed ground to forestall weedy invasion and to promote natural rehabilitation by local native plant sources. All revegetation activities will require the use of genetically local native plant material to the extent possible. These activities include construction sites associated with dam maintenance or repair, use of borrow areas, etc. (As directed by the Selway-Bitterroot Wilderness Vegetation Management- Forest Plan Amendment 12).	A, B, C, D	A, B, C,D
23. All ground disturbing activities occurring outside the high water mark (such as at the campsite) will be reclaimed to a natural appearance using genetically local seed sources, if necessary	A, B, C, D	A, B, C, D
24. CCID will submit a revegetation plan to the Forest Service for review, to ensure consistency with Wilderness values and direction provided for in the Selway-Bitterroot Wilderness Vegetation Management-Forest Plan Amendment 12). Goals for Revegetation are provided in Chapter 2. Revegetation recommendations can be found in the Revegetation Plan in the Project File	A, B, C, D	A, B, C, D
25. All equipment used in repair or construction activities will be cleaned prior to use in the project area. All mud, dirt, and plant parts will be removed from all equipment before moving to the project area. Cleaning must occur off National Forest Lands.	A, B, C, D	A, B, C, D
26. All borrow areas will be inspected prior to use or material transport. Sites occupied by noxious weed species will not be used.	A, B, C, D	A, B, C, D
27. If straw bales or straw wattles are used in reclamation activities, they must be certified noxious weed free or noxious weed-seed free by the State of Montana.	A, B, C, D	A, B, C, D

Measure	Alt.2 CCID Options	Alt.3 CCID Options
Trail Reconstruction and Construction		
28. If the Canyon Trail is reconstructed, covering the previous trail tread with slash to obstruct access at either end of the trail will be done to discourage use. Water bars will be installed as necessary to prevent further erosion.		A, B, C, D
29. If a new trail is constructed to access Wyant Lake from Canyon Lake the amount of tread construction should be minimized in order to save as much native vegetation as possible.		A, B, C, D
30. Weed prevention practices for trail construction will be followed. (PF 2.2)		A, B, C, D
31. Any blasting (such as might be required for trail maintenance in Alternative 3, or rock crushing operations), will meet the requirements in the Programmatic Biological Assessment for Trail Maintenance (Western Montana Bull Trout Level I Team 1999 – PF 2.3)	A, B, C, D	A, B, C, D
32. CCID would be responsible for contracting and cost of trail construction, reconstruction and maintenance as necessary for project work.		A, B, C, D
Permits and Plans		
33. CCID will provide plans and specifications for the work to be done at the dams	A, B, C, D	A, B, C, D
34. CCID would be responsible for obtaining the required state or federal permits. This would include: State of Montana, Department of Natural Resources 310 permit and Army Corps of Engineers 404 permit. A 318 authorization may be required from the Department of Environmental Quality	A, B, C, D	A, B, C, D
35. Air Operations, Safety, Camp Management, Materials Handling and Spill Plan, Sediment Monitoring, Communications, Reclamation and Revegetation Plans will be required as a condition for the construction work and will be developed by CCID prior to construction and approved by the Forest Service.	A, B, C, D	A, B, C, D
36.A contingency plan and response guide for spill emergencies, including onsite and during transport, shall be submitted and approved by the Forest Service prior to onsite fuel storage.	A, B, C, D	A, B, C, D

The following items are Forest Service (FS) Responsibility:

Table 2.2 Mitigation Measures (FS)

Measure	Alt. 2 CCID Options	Alt. 3 CCID Options
37. A Forest Service wilderness ranger will discuss resource protection standards with workers.	A, B, C, D	A, B, C, D
38. Wilderness visitor safety will be insured by temporary closures during work and helicopter operations.	A, B, C, D	A, B, C, D
39. Where cultural resources or human remains are encountered during project implementation, the Forest has the authority to modify or halt project activities.	A, B, C, D	A, B, C, D
40. Prehistoric site 24RA541, in the Canyon Lake Basin, will be evaluated to have its eligibility status formally determined during the summer of 2003.	A, B, C, D	A, B, C, D
41. Forest Service Botanist will assist with seed collection and transplanting of vegetation.	A, B, C, D	A, B, C, D
42. The Forest Service, prior to commencement of work, will approve all specifications and plans prepared by CCID.	A, B, C, D	A, B, C, D
43. The Forest Service engineer is responsible to approve any work from a technical standpoint and assure that the work meets dam safety laws and regulations.	A, B, C, D	A, B, C, D

ENVIRONMENTAL MONITORING

Monitoring and Inspection that is CCID's Responsibility:

CCID will provide a qualified engineer for site monitoring and quality control of work.

CCID will implement the sediment monitoring plan to ensure that environmental protection and mitigation measures are effective.

Follow-up inspections of the dam after the first filling of water will be required in order to provide monitoring of the effectiveness of the repair work for safety and engineering standards.

Monitoring that is Forest Service Responsibility:

Monitoring specific to All Alternatives

A Forest Service engineer will periodically monitor the work performed at the dams. On-site routine monitoring by USFS engineering personnel will ensure engineering standards are being met. USFS engineer will monitor the rock borrow area to ensure these areas are confined to the least amount of surface area.

A Forest Service wilderness ranger will provide additional on-site monitoring during project work to ensure wilderness and resource protection standards are met at dam sites and within the access corridor. Using specifications, plans, terms, conditions and mitigation measures, the wilderness ranger will provide feedback to ensure access and project work meet mitigation and protection standards.

Monitoring specific to Alternative 3

A Forest Service trails specialist will provide additional on-site monitoring during construction/reconstruction of trails to ensure wilderness and resource protection standards are met within the access corridor. The trails specialist will use specifications in all construction/reconstruction plans and mitigation measures to ensure work is meeting the mitigation and protection.

Annual follow-up inspections, for a period of 5 years, of the trail will provide monitoring of the effectiveness of the trail repair work for safety and engineering standards, wilderness and recreation objectives, trail rehabilitation and drainage improvements.

SUMMARY OF EFFECTS

Analysis of potential effects associated with the Proposed Action and Alternatives is presented in Chapter 3, Affected Environment and Environmental Consequences. The following is a summary of potential effects, by resource, resulting from the Proposed Action and alternatives.

Comparison of Effects on Access

Alternative 1	Alternative 2	Alternative 3
No action does not meet need to access dams.	Access would be provided to the easement by helicopter. This would meet the need to access the dams. In Option D, Phase 1, some equipment could be packed in by stock and work crews would hike to Canyon Lake Dam	Access would be modified. Helicopter and stock access would be used. This could meet the need to access the dams but would extend the project duration and increase costs

Comparison of Effects on Wilderness Character

Alternative 1	Alternative 2	Alternative 3
In Alternative 1, there would be no work at either Canyon or Wyant Lakes and therefore no direct effect to the wilderness resource. An indirect effect of not making the dams safe (dam failure) would be irreparable harm to Canyon Creek's natural integrity through massive erosion of the stream channel and introduction of noxious weeds. Another indirect effect of repeated heavy maintenance requests to provide temporary fixes to dams safety problems would take place and there would be frequent requests to use mechanized transport or motorized equipment. If the dam failed as a result of not being made safe, worker and public safety would be compromised.	In Alternative 2, the work in Options A, B, or C would be accomplished during a one-year period and in Option D during a two-year period. Most work would occur in previously disturbed areas. Indirect effects would be minimal. The lake basin's problem area status would not be affected because existing campsites would be used and there would be no stock containment.	In Alternative 3, work would be accomplished during a two-year period. A new trail would be built between Canyon and Wyant Lake to accommodate stock transport. Indirect effects of a new trail to Wyant Lake would be loss of natural integrity (through introduction of noxious weeds) and increased campsite impacts (ease of access by both foot and stock users would add new campsites and degrade existing campsites). An indirect effect of reconstructing/constructing the trail system to accommodate stock use would be a reduction in requests to use helicopters for access. The lake basin's problem area status would be affected by increased use and impacts at existing campsites (work camps and stock containment) and new campsites at Wyant Lake (created because of easier access). Increased use in the Canyon drainage would at least temporarily relieve recreational pressure in nearby drainages that do not meet Forest Plan standards, but would not reduce overall problem status in those areas.

Alternative 1	Alternative 2	Alternative 3
	In both action alternatives, the actual work, presence of workers and transportation of workers/equipment would affect visitor's sense of remoteness and solitude through the duration of work. Sights and sounds of helicopter transport and mechanized equipment would be apparent on trails and throughout the lake basin. These sights and sounds would be intrusions on visitor's sense of remoteness and solitude. Effects to apparent naturalness would be greater with reconstruction at Canyon Dam in Options A, B and D than with a breach, Option C. New areas would be used for fill material sources and there would be visible additions to the dam's structure (trash racks, rock work, additional spillway capacity, etc.). In both action alternatives, a breach would improve the natural integrity of the Canyon Creek stream channel. A breach would also indirectly benefit visitor solitude. Since there would be no vegetation to screen campers near the original shoreline, use would probably continue at existing campsites. This would maintain use about 200' from water and reduce social encounters around the lakes. Work needed to make both dams safe would indirectly benefit the wilderness legal setting by reducing or eliminating (depending on reconstruction or breach) the number of requests in the future for heavy maintenance to provide for temporary fixes to dam safety problems and associated requests to use mechanized transport or motorized equipment. Worker safety would be improved if heavy maintenance needs are reduced (via major rehabilitation) and greatly improved if heavy maintenance needs are eliminated (via breach).	
No Cumulative Effects	In both action alternatives, use of mechanized transport and motorized equipment authorized on this and other wilderness dams would have a cumulative effect on the wilderness resource.	
		Alternative 3 would have additional cumulative effects to the wilderness resource. Increased foot and stock use would degrade the Canyon/Wyant lake problem area status, requiring management action that might result in restrictions to visitor use.

Comparison of Effects on Dam Safety

Alternative 1	Alternative 2	Alternative 3
No action, does not meet dam safety requirements.	This alternative meets dam safety requirements.	This alternative meets dam safety requirements, with conditions on the timeliness of the trail construction.

Comparison of Effects on Trails and General Recreation

Trails and Recreation	Alternative 1	Alternative 2	Alternative 3
Trails and General Recreation Setting	In Alternative 1, there would be no work at either Canyon or Wyant Dams and therefore no additional use at the parking area or on the trail. There would be no area closures. The indirect effect of not making the dams safe (dam failure) would be damage to Canyon Trail #525 at numerous locations along the creek. Trail damage would temporarily limit visitor access and be costly to repair.	There would be no direct or indirect effects to Canyon Trail #525 since primary access for workers and equipment would be by helicopter. Work would affect visitor experience during a one-year field construction period for Option A, B or C. Work would affect visitor experience during a two-year field construction period for Option D (see Effects Common to Action Alternatives).	In Alternative 3, reconstruction of Canyon Trail #525, construction of a new trail to Wyant Lake and improvement of the trailhead to accommodate stock transport would occur. There would be no restrictions on the trail during approximately 20 days of stock transport but visitors would be inconvenienced (at the parking area and by encounters with stock along the trail). An indirect effect of improving the trail and parking area and of building a trail between Canyon and Wyant Lakes would be ease of access for both foot and stock users. Increased stock use would require increased trail maintenance. Work would affect visitor experience during a two-year field seasons or longer construction period for Option A, B or C. Work would affect visitor experience during a two or three year field seasons construction period for Option D (see Effects Common to Action Alternatives).
		In both action alternatives, recreational restrictions in the vicinity of work at Canyon and Wyant Lakes would depend on the location/timing of work and on safety considerations. The need for area closures during work would affect visitor access at Canyon and Wyant Dams during the entire work project and on the trail when helicopters were used for transport. Areas not directly involved in work projects would remain open to use. In both action alternatives, a breach at Canyon Lake (Option C) would reduce lake capacity, leave the existing shoreline exposed and degrade visitor experience. This effect would gradually diminish (over approximately 20 years) as vegetation/trees naturalize the area between the existing and original shorelines. Recreational fishing opportunities would be affected by the smaller lake capacity and its reduced ability to support fish over the winter.	
	It is unlikely that any of the alternatives would have cumulative effects on either the Canyon Trail #525 or general recreation.		

Comparison of Effects on Heritage Resources

Alternative 1	Alternative 2	Alternative 3
No effect	Canyon Lake Dam is Not Eligible for the National Register, therefore, repairs, maintenance or reconstruction to the dam itself will have no effect on cultural resource values. A prehistoric site 24RA541 will not be affected by the proposed action, provided that all project-associated activities such as stock confinement or grazing, camping and latrine areas, borrow sites, etc. avoid the 24RA541 location.	Canyon Lake Dam is Not Eligible for the National Register, therefore, repairs, maintenance or reconstruction to the dam itself will have no effect on cultural resource values. A prehistoric site 24RA541 will not be affected by the proposed action, provided that all project-associated activities such as stock confinement or grazing, camping and latrine areas, borrow sites, etc. avoid the 24RA541 location.
No effect	The Montana State Historic Preservation Officer determined Wyant Lake Dam (24RA0549) Eligible for the National Register of Historic Places on February 3, 2003. On the same date, Montana SHPO concurred that the proposed breaching via deepening of the existing spillway (previously enlarged in 1971) and the opening of the outlet gate would constitute No Adverse Effect to the Wyant Dam historic property.. Although the dam itself was resurveyed on August 7, 2001, the area (basin) surrounding Wyant Lake has not yet received a cultural resource inventory.	The Montana State Historic Preservation Officer determined Wyant Lake Dam (24RA0549) Eligible for the National Register of Historic Places on February 3, 2003. On the same date, Montana SHPO concurred that the proposed breaching via deepening of the existing spillway (previously enlarged in 1971) and the opening of the outlet gate would constitute No Adverse Effect to the Wyant Dam historic property. Although the dam itself was resurveyed on August 7, 2001, the area (basin) surrounding Wyant Lake has not yet received a cultural resource inventory.

Economics

The following table, displays estimated selected costs to CCID to implement the alternatives. These costs are only relative values, and may be used only to compare alternatives. These costs for dam rehabilitation and breach are estimated at ± $150,000. Costs are listed per option and alternative. Revegetation costs would be included in the costs of the rehabilitation or breaching the dams.

Comparison of Estimated costs to CCID

Alternative	Option	Cost for Work Related to Dams and Trail Work	Comments
Alternative 1		No direct costs identified for No Action Alternative.	Catastrophic failure would result in resource and human damages.
Alternative 2	Option A Canyon Lake Dam repair and breach Wyant Lake Dam	$538,000	Project cost for work at Canyon Lake Dam is offset additionally by grant and loan funding.
	Option B Canyon Lake Dam rehabilitation and breach Wyant Lake Dam	$1,100,000	
	Option C Breach Canyon Lake Dam and breach Wyant Lake Dam	$301,000	No grant or loan funding would be available.
	Option D Partial Breach of Canyon Lake Dam in 2003, Major Rehabilitation of Canyon Lake Dam in 2004	$880,000 to $1,200,000	Project cost for work at Canyon Lake Dam is offset additionally by grant and loan funding
Alternative 3-	Option A Canyon Lake Dam repair and breach Wyant Lake Dam	$638,000	Project cost for work at Canyon Lake Dam is offset additionally by grant and loan funding. Estimated costs for trail construction and reconstruction work ($100,000 is added to costs to rehabilitate and breach dams. The cost for trail work would not be covered by grant funding.
	Option B Canyon Lake Dam rehabilitation and breach Wyant Lake Dam	$1,200,000	
	Option C Breach Canyon Lake Dam and breach Wyant Lake Dam	$401,000	Estimated costs for trail construction and reconstruction work is added to costs to rehabilitate and breach dams. No grant or loan funding would be available.
	Option D Partial Breach of Canyon Lake Dam in 2003, Major Rehabilitation of Canyon Lake Dam in 2004	$980, 000 to $1,300,000	Project cost for work at Canyon Lake Dam is Offset additionally by grant and loan funding

Comparison of Estimated Costs to Forest Service

Alternative 1	Alternative 2	Alternative 3
Routine dam monitoring by engineers and inspection costs could increase by $750 annually.	Cost to the Forest Service of monitoring dam project work at Canyon and Wyant Lake Dams is estimated at estimated at $8,400 for Options A, B, C and $13,450 for Option D.	In addition to the monitoring costs in alternative 2, costs of monitoring trail project work is estimated at $4,000. Total cost to the Forest Service for monitoring would be $12,400 for Options A, B, C and $17,450 for Option D

Table 2.9 Comparison of Effects on Wildlife

Wildlife Resource	Alternative 1	Alternative 2	Alternative 3
Management Indicator Species (MIS) - Elk	No Effect	No Effect to elk habitat. Minor disturbance to elk from construction and helicopter flights.	No Effect to elk habitat. Minor disturbance to elk from construction, helicopter flights and people traveling on trail. Trail improvement and construction has potential to cause longer lasting more severe disturbance to elk in the area. The proposed trail improvement and construction would likely lead to increased recreational use of the trail and the areas around Canyon and Wyant Lakes. This increased use could result in minor additional disturbance effects to elk in the future.
MIS- Pine Marten	No effect	No effect on marten habitat. No lasting adverse effects to marten.	No effect on marten habitat. Trail improvement and construction has the potential to cause some disturbance to marten in the area. The proposed trail improvement and construction would likely lead to increased recreational use of the trail and the areas around Canyon and Wyant Lakes. This increased use could result in minor additional disturbance effects to marten in the future.
MIS – Pileated Woodpecker	No effect	No effect on pileated woodpecker habitat. No effect from construction activities. Helicopter flights could disturb pileated woodpeckers to a minor degree. No lasting adverse effects from workers on trail.	No effect on pileated woodpecker habitat. No effect from construction activities. Helicopter flights could disturb pileated woodpeckers to a minor degree. No lasting adverse effects from workers on trail Trail improvement and construction has the potential to cause some disturbance to pileated woodpeckers in the area. The proposed trail improvement and construction would likely lead to increased recreational use of the trail and the areas around Canyon and Wyant Lakes. Increased use of the trail to Canyon Lake could result in minor additional

Wildlife Resource	Alternative 1	Alternative 2	Alternative 3
			disturbance effects to pileated woodpeckers in the future. Increased recreational use around the lakes would not affect this species because there is no suitable habitat in the immediate area.
Threatened status-Lynx	No effect	No effect on lynx habitat. Helicopter flights could disturb lynx to a minor degree. Construction activities could disturb individual lynx, but would not effect lynx populations. The project is not likely to jeopardize the continued existence of the Canada lynx. No critical habitat has been designated for this species, therefore, none will be affected. Effects stemming from implementation of the proposed action are likely insignificant or discountable.	No effect on lynx habitat. Helicopter flights could disturb lynx to a minor degree. Construction activities could disturb individual lynx, but would not effect lynx populations Trail improvement and construction has the potential to cause some disturbance to Lynx if in the area. The project is not likely to jeopardize the continued existence of the Canada lynx. No critical habitat has been designated for this species, therefore, none will be affected. Effects stemming from implementation of the proposed action are likely insignificant or discountable. The proposed trail improvement and construction would likely lead to increased recreational use of the trail and the areas around Canyon and Wyant Lakes. This increased use could result in minor additional disturbance effects to lynx in the future.
Threatened status – Bald Eagle	No effect	No effect	No effect
Endangered Status- Gray Wolf	No effect	No effect on wolf habitat. Chance of disturbance from construction activities and/or helicopter flights.	No effect on wolf habitat. Chance of disturbance from construction activities and/or helicopter flights. Trail improvement and construction has the potential to cause some disturbance to wolves if in the area. The proposed trail improvement and construction would likely lead to increased recreational use of the trail and the areas around Canyon and Wyant Lakes. This increased use could result in

Wildlife Resource	Alternative 1	Alternative 2	Alternative 3
			minor additional disturbance effects to wolves in the future.
Threatened status – Grizzly Bear	No effect	No effect on grizzly bear habitat or population.	No effect on grizzly bear habitat or population.
Sensitive Species – Peregrine Falcon	No effect	No effect on peregrine habitat. Explosives could disturb nesting peregrine, but this is unlikely due to late season construction period and no known eyries.	No effect on peregrine habitat. Explosives could disturb nesting peregrine, but this is unlikely due to late season construction period and no known eyries. Increased recreational use caused by trail improvement and construction would be inconsequential to peregrine falcons.
Sensitive Species – Flammulated owl	No effect	No or little effect	Minor effect to habitat if trail improvements required felling of potential owl nest snags. The proposed trail improvement and construction would likely lead to increased recreational use of the trail and the areas around Canyon and Wyant Lakes. Increased use of the trail to Canyon Lake could result in minor additional disturbance effects to flammulated owls in the future. Increased recreational use around the lakes would not affect this species because there is no suitable habitat in the immediate area.
Sensitive Species – Black-backed woodpecker	No effect	No or little effect	No or little effect during construction activites. The proposed trail improvement and construction would likely lead to increased recreational use of the trail and the areas around Canyon and Wyant Lakes. This increased use could result in minor additional disturbance effects to black-backed woodpeckers in the future.
Sensitive Species- Fisher	No effect	No or little effect	Trail improvement and construction has the potential to cause some disturbance to fisher in the area. The proposed trail improvement and construction would likely lead to increased

Wildlife Resource	Alternative 1	Alternative 2	Alternative 3
			recreational use of the trail and the areas around Canyon and Wyant Lakes. This increased use could result in minor additional disturbance effects to fisher in the future.
Sensitive Species- Wolverine	No effect	No effect to wolverine habitat. Small chance of disturbance from construction activities.	No effect to wolverine habitat Small chance of disturbance from construction activities. Trail improvement and construction has the potential to cause some disturbance to wolverines in the area. The proposed trail improvement and construction would likely lead to increased recreational use of the trail and the areas around Canyon and Wyant Lakes. This increased use could result in minor additional disturbance effects to wolverine in the future.
Sensitive Species- Coeur d'Alene salamander	No effect	Could affect habitat during construction. No lasting adverse effects.	Could affect habitat during construction. No lasting adverse effects.
Sensitive Species - Goshawk	No effects	No effect to habitat. No or minor effects from hikers on trail.	No effect to habitat. Could potentially cause disturbance to goshawk resulting in abandoned nest if trail work in the lower few miles of trail, were concentrated near a nest in April, May or June. The proposed trail improvement and construction would likely lead to increased recreational use of the trail and the areas around Canyon and Wyant Lakes. Increased use of the trail to Canyon Lake could result in minor additional disturbance effects to goshawks in the future. Increased recreational use around the lakes would not affect this species because there is no suitable habitat in the immediate area.
Sensitive Species – Boreal (or Western) Toad	No effect	Could effect boreal toad habitat with minor temporary changes to water flows. Limited potential to affect	Similar to 2, but trail reconstruction activities have some potential to have a minor effect on individual toads. The

Wildlife Resource	Alternative 1	Alternative 2	Alternative 3
		individual toads.	proposed trail improvement and construction would likely lead to increased recreational use of the trail and the areas around Canyon and Wyant Lakes. This increased use could result in minor additional disturbance effects to toads in the future.
Other wildlife species – Mountain Goat	No effect	No effect to goat habitat. Helicopter flights could potentially cause severe disturbance to goats, if the helicopter passed low over the goats. Minor disturbance to goats could occur as a result of construction activities.	Similar to 2, but trail reconstruction activities have some potential to cause longer lasting, more severe disturbance to goats. Goats most likely would respond by moving away from the disturbance. No long lasting adverse effects to goats. The proposed trail improvement and construction would likely lead to increased recreational use of the trail and the areas around Canyon and Wyant Lakes. This increased use could result in minor additional disturbance effects to goats in the future.

Comparison of Effects on Fish and Water

Fisheries and Water Resources	Alternative 1	Alternative 2	Alternative 3
Fish Habitat	Potential to severely degrade habitat	Short term and negligible changes in fish habitat	Short term and negligible changes in fish habitat
Fish Individuals or Populations	Potential to kill fish and other aquatic animals. Recovery time would be more than a decade	Short term and negligible changes in fish populations	Short term and negligible changes in fish populations Blasting for trail work may impact fish within the shock zone.
Sediment: Canyon Lake Dam	Potential dams failure would likely result in high flows, a large sediment release and extensive scouring throughout the canyon.	Small potential to produce short-term sediment, due to mitigation measures, project design, and natural sediment trapping ability of the reservoir. Only the areas adjacent to the dam outlet could produce sediment in Canyon Creek, and these contributions would be minimized through the erosion control plan. Options C & D may cause channel adjustment in the small wet meadow below the breach, and contribute a limited amount of sediment to downstream reaches. No long-term effects predicted	

Fisheries and Water Resources	Alternative 1	Alternative 2	Alternative 3
Sediment: Wyant Lake Dam	Potential dams failure would likely result in high flows, a large sediment release and extensive scouring throughout the canyon.	Sediment leaving the reservoir will likely be quite limited, due to mitigation measures and project design. Canyon Reservoir would retain any sediment passing the proposed in-stream sediment traps to limit effects to the reach of stream between the two reservoirs. The reach of stream between the two reservoirs is most likely to be affected by sediment from Wyant Reservoir. Canyon Lake's non-native trout use this section of stream for spawning. The fine sediments exposed by the lowering of the water level have the potential to create and support high-quality alpine wetlands, similar to those created in beaver pond complexes when those areas are abandoned. Channel adjustment in the former reservoir bed has the potential to last two to three flow seasons, until the new stream banks have adjusted and vegetated. No long-term effects predicted.	
Water and Riparian Areas	Potential dams failure would likely result in high flows, a possible flash flood and extensive scouring throughout the canyon. Streamside riparian areas could be severely damaged or eroded away completely.	Water resource impacts from raising the dam spillway would be extremely limited due to the diversion of water away from the worksite, use of rock from existing quarries, and the limited associated ground disturbance.	Water resource impacts from raising the dam spillway would be extremely limited due to the diversion of water away from the worksite, use of rock from existing quarries, and the limited associated ground disturbance.
Water Effects from Excavation	No effect.	No negative environmental effects are expected from the spreading of excavated rock on the reservoir floor. Excavation seepage and grouting washwater would be pumped and discharged at the reservoir shoreline for settling or filtration of sediment. Reservoir outflow would be diverted away from the excavation site and pumped over the dam crest or spillway.	No negative environmental effects are expected from the spreading of excavated rock on the reservoir floor. Excavation seepage and grouting washwater would be pumped and discharged at the reservoir shoreline for settling or filtration of sediment. Reservoir outflow would be diverted away from the excavation site and pumped over the dam crest or spillway.
Water Effects from Trail work	No effect.	Little to no impact is expected from the trail maintenance work.	Very little impact is expected from the construction or reconstruction of this foot/stock trail. A very small amount of sediment may be contributed to water bodies or wetlands through the points where the existing trail has one small

Fisheries and Water Resources	Alternative 1	Alternative 2	Alternative 3
			tributary stream crossing.

Sensitive Plants

Canyon Lake Dam: Sensitive Plants Comparison of Effects

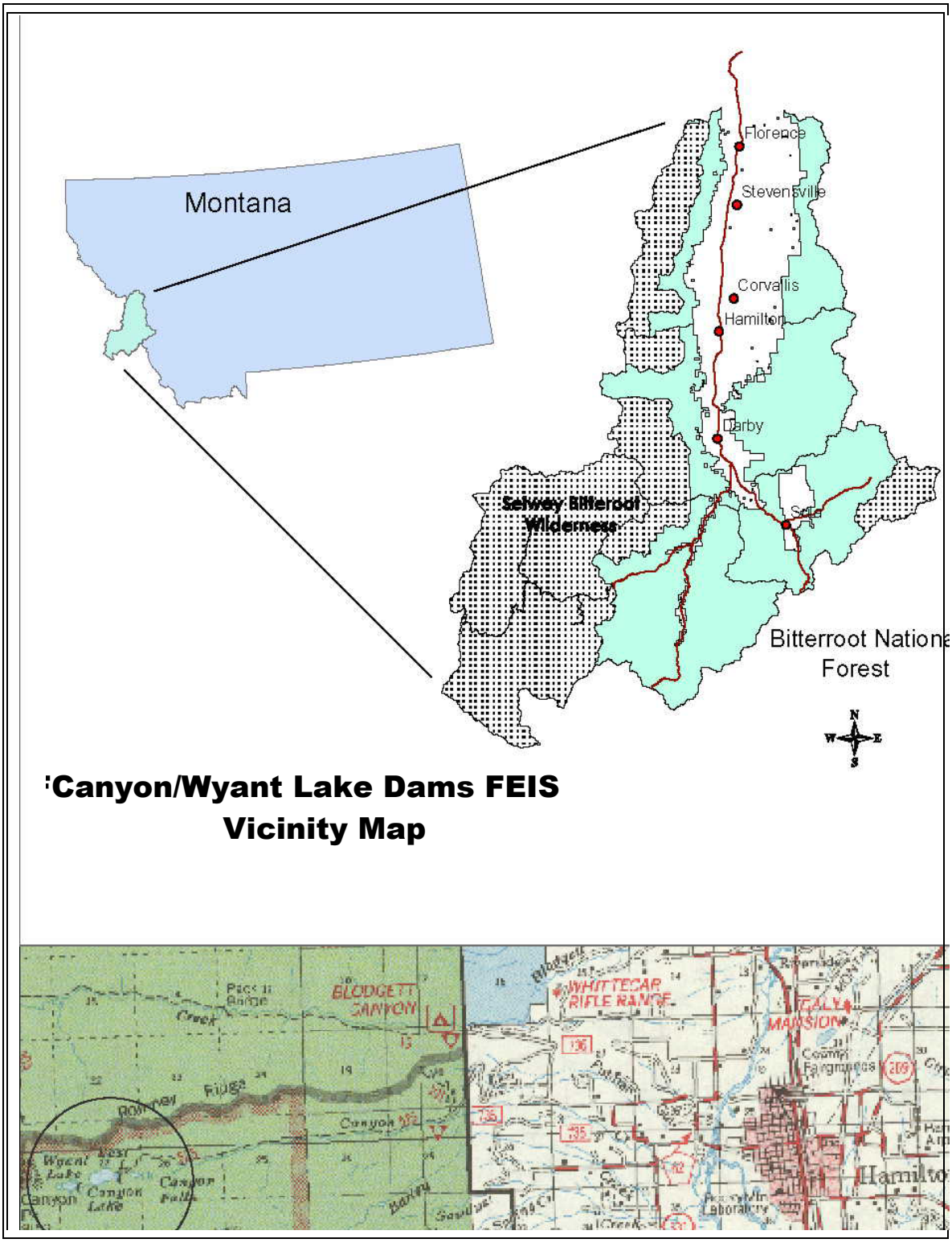
Species	Alternative 1	Alternative 2	Alternative 3
Bitterroot bladderpod (Lesquerella humilis)	NI	MIIH	MIIH
storm saxifrage (Saxifraga temestiva)	NI	MIIH	MIIH
western boneset (Eupatorium occidentale)	NI	MIIH	MIIH
rough fleabane (Erigeron asperugineus)	NI	MIIH	MIIH
Idaho douglasia (Douglasia idahoensis)	NI	MIIH	MIIH
candystick (Allotropa virgata)	NI	NI	NI
sandweed (Athysanus pusillus)	NI	NI	NI
scalepod Idahoa scapigera)	NI	NI	NI

Wyant Lake Dam: Sensitive Plants Comparison of Effects

Species	Alternative 1	Alternative 2	Alternative 3
Bitterroot bladderpod (Lesquerella humilis)	NI	MIIH	MIIH
storm saxifrage (Saxifraga temestiva)	NI	MIIH	MIIH
western boneset (Eupatorium occidentale)	NI	MIIH	MIIH
rough fleabane (Erigeron asperugineus)	NI	MIIH	MIIH
Idaho douglasia (Douglasia idahoensis)	NI	MIIH	MIIH
candystick (Allotropa virgata)	NI	NI	NI
sandweed (Athysanus pusillus)	NI	NI	MIIH

NI = No Impact
MIIH = May Impact Individuals Or Habitat, But Will Not Likely Contribute To A Trend Towards Federal Listing Or Loss of Viability To The Population Or Species.
WIFV*= Will Impact Individuals Or Habitat With A Consequence That The Action May Contribute To A Trend Towards Federal Listing Or Cause A Loss Of Viability To The Population Or Species (*trigger for significant action)
BI= Beneficial Impact

Map 1


Montana
Florence
Stevensville
Corvallis
Hamilton
Darby
Selway Bitterroot Wilderness
Bitterroot National Forest
N
W
E
S
Canyon/Wyant Lake Dams FEIS
Vicinity Map
BLODGETT CANYON
WHITTECAR RIFLE RANGE
GALEN MANSION
Canyon Lake
Hamilton